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Important Trifles in the Treatment of Congenital Club-Foot.

— BY —

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IMPORTANT TRIFLES IN THE TREATMENT OF CONGENITAL CLUB-FOOT.

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WE will all agree that one of our satisfactory procedures is the correction of congenital club-foot. The treatment covers a number of years and demands careful and laborious attention on the part of the surgeon and the home attendant, and is, in so far, open to criticism; but, on the other hand, it is painless, and the progress made is continuous, and may be easily noted from time to time, and in some stages from day to day, and the result is practically perfect function and almost perfect shape.

Treatment should be far advanced long before the child wishes to stand. In this early stage almost any treatment will reduce the apparent deformity. Restoration of normal shape is commonly effected in the routine of general practice. Probably many feet have been restored by the uninstructed and tireless hand of the mother. The foot in this stage is peculiarly amenable to treatment. It seems to be held up or stretched out for relief with the implied guarantee that the weight of the body will not interfere with corrective efforts.

I will not describe, or even attempt to enumerate the different methods that are successful in this easy stage. In fact, the method and the apparatus used are decidedly secondary in importance to the personality of the man who determines or conceives the method to be followed, and applies or devises the apparatus employed. The essential thing is to exert the right degree of force in certain directions with due persistence and with proper intervals of mobility and massage. It certainly should not be, and it is not, difficult thus to overcome the misshape of an infant's foot with its delicate tissues and rapidly growing structures.

But when the child begins to walk, a case full of promise up to that time will probably begin to present troublesome features. The foot that appears in good shape when held up in the air will probably turn varus in a few days or weeks under the repeated blows inflicted by the weight of the body as the child runs about. And yet this new and threatening element may be made useful and beneficial by recognizing

and taking advantage of the dividing line between varus and valgus. This line has a counterpart in the hand and fore-arm, which may be discovered by pressing firmly on a table with the ulnar border of the hand and, while continuing the pressure, inclining the hand alternately toward supination and pronation. It will at once become evident that there is a natural boundary line between the domains of supination and pronation. Let supination of the hand stand for varus of the foot and pronation for valgus, and we recognize that there is a dividing line of practical importance between varus and valgus, and it will not escape us that according as the weight of the body is thrown on one or the other side of this line, it will benefit or harm the club-foot under treatment. Press the border of the hand on the table with a force equal to the weight of the child, say 25 pounds, and the value of this factor in pathology and therapeutics becomes apparent. Under this pressure it is not to be wondered at that a foot allowed to fall in the wrong direction becomes an inveterate club-foot, nor is it strange that a foot, subjected to this weight, when properly held on the right side of the equivocal line during the period of growth, becomes normal in shape and function. If the foot is gently held so that its plantar surface strikes the floor at a favorable inclination, it may be said that the child actually stamps his foot straight as he runs about.

Now, to design and apply a machine that shall practically guide the foot on the right side of this dividing line, and that shall be comfortable and reasonably durable, though entirely possible, is not a very easy thing to do. The principal involved stands out plain enough, but, as we so often have occasion to see, the practical details are somehow of more importance than the guiding principles.

Having discussed at some length the particulars of this interesting problem on other occasions, I will only mention one or two points which are likely to make treatment more convenient and effective. The presentation of these points, important trifles they may be called, is my excuse for taking up your time with the familiar views and statements which are found here.

Dividing the foot-piece of a walking brace into two parts, the riser and the tread, to use the stair-builder's phraseology, it will be recalled that when pressure is made on the convexity

of the deformity, the anterior part of the foot, where counter-pressure is made, will in some cases surmount the top of the riser, unless some way of keeping it down is adopted. I have found that it is not a bad plan to attach a buckle, Fig. 1, F, to the under side of the tread and a small piece of sticking plaster to the dorsum of the foot near the toes. The plaster is doubled and cut in such a way that it has a non-adhesive tail, Fig. 2, A, or handle, that may be passed through a window, Fig. 1, D, or slit, cut in the foot-piece at the junction of the tread and the riser, and then buckled suitably tight to the

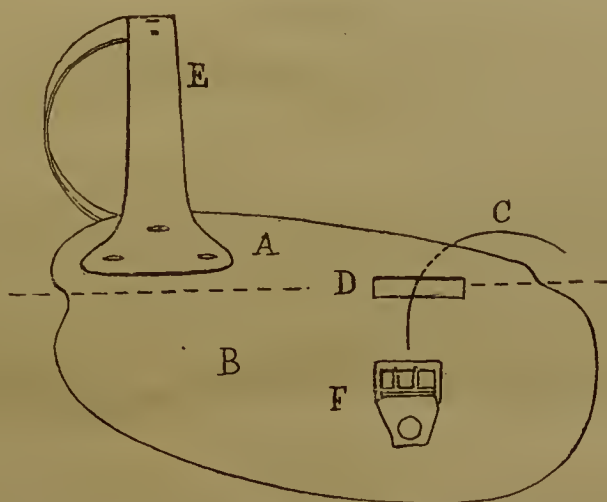


FIG. 1.—Under view of club-foot brace. A riser, B lower surface of tread, D window through which the adhesive strip passes to the buckle.



FIG. 2.—A Non-adhesive tail, B adhesive portion, with facing partly removed, to be applied to dorsum of foot.

buckle before mentioned as being attached to the under side of the tread. This is but another way of doing what is sometimes done by bending toward the dorsum of the foot the upper border of the riser, which is made higher for this purpose. Either method will secure the result. I have preferred the former because the use of these bits of adhesive plaster, with non-adhesive tails, enables one to make traction in different directions on different parts of the foot, thus imitating, though remotely, the action of the hand.

It is in the experience of us all to wish that apparatus could be invented which would enable us to apply for long periods the tractive and restraining forces, which are so easily applied for a short time by the hand.

I think simplicity of construction is to be sought in this instance, as well as in all orthopedic apparatus. In this case the "heel-cup" may be formed by a piece of webbing, starting from the outer border of the tread and crossing the tendo Achillis, to be buckled on the upright, or shank, of the brace more or less loosely, as desired. And one upright is better than two, because with one it is easy, and with two impossible, to follow, or rather to lead, with a gradually changing upright of tractable steel, the crooked foot from varus to extreme valgus, or over-correction.

I will close with a brief reference to the management of the equine feature of these cases. I have found the goniometer of considerable usefulness in measuring the degree of flexion of the foot on the leg. The knee should be flexed in order to relax the tendo Achillis, and the varus should be reduced manually so far as it is practicable, and then one arm of the goniometer may be held parallel with the crest of the tibia, and the other with a line connecting the plantar surfaces of the head of the first metatarsal bone and the os calcis. The examiner will wish that he had two or three supernumerary hands to hold the instrument and the leg and foot of a restless child, but with care the reading of the scale will give a sufficiently accurate record.

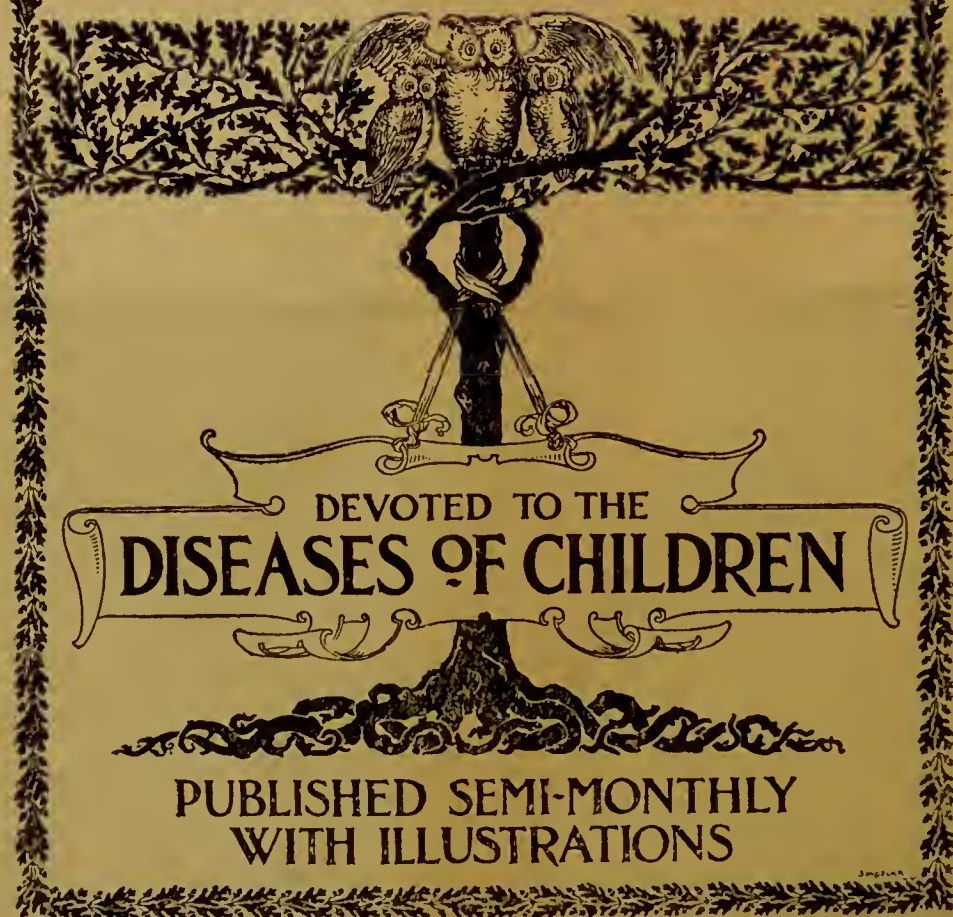
It is a good rule that the equinus should be undisturbed at the beginning of treatment, because the length of the foot in equinus gives a convenient lever for the application of force against the varus. When the walking brace is first applied to a foot which is simply equine, the varus element having been eliminated by treatment, its foot-piece and upright must also be equine, or else it cannot be applied. The webbing which in this brace makes pressure from before backward on the upper part of the tibia, transfers to this point, from the anterior part of the sole, a part of the corporal weight, and thus facilitates further molding of the foot by lateral pressure, inasmuch as it partially restores the condition, favorable to treatment, which is found before the child begins to walk, but an unexpected result, and one whose cause I am at a loss to understand, is a gradual and painless reduction in the equinus. I have not as yet been able to collate the observations which I have recorded, or to consider the interesting questions to which they give rise.

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